REMARKS

This application has been carefully reviewed in light of the Office Action dated December 16, 2004. Claims 1 to 3 and 5 to 54 are pending in the application, of which Claims 1, 9, 15, 16, 24, 30, 31, 39 and 45 to 54 are independent. Reconsideration and further examination are respectfully requested.

As an initial matter, Applicants thank the Examiner for the courtesies extended to Applicants' representative in a telephonic interview on May 23, 2005. During that interview, the Examiner requested further clarification in the claims regarding the method by which "reducing the number of recording dots" was achieved. In addition, the Examiner requested that it be made clear in the claims that the recording mode selected by the operator is canceled when changing to the first recording mode, when the second recording mode is selected by the operator. Applicants submit that the above amendments and following remarks reflect the complete substance of the interview.

Claims 47, 48, 50, 51, 53 and 54 were rejected under 35 U.S.C. § 112, first paragraph. Reconsideration and withdrawal of these rejections are respectfully requested.

Applicants submit that support for Claims 47, 48, 50, 51, and 53 can be found in the specification on pages 13 . Specifically, "a second recording mode for referring to images of pixels surrounding a given pixel of the image input by said input means, decimating the image in a manner such that whether a given pixel is deleted is based on the surrounding pixels that have been referred to" is supported by the description, starting at page 13, line 7 of the exemplary embodiment of the invention shown in FIG. 3. In the description, a method is described for referring to the surrounding pixels of the pixel and determining if they belong to a halftone image or to a character. If the surrounding

pixels belong to a character, whatever recording mode chosen by the user is used to determine if the pixel is deleted in order to decimate the image. However, if the surrounding pixels belong to a halftone image, then the recording mode selected by the user is canceled and only a normal mode is used to process the pixel. Accordingly, Applicants respectfully request withdrawal of the rejection of Claims 47, 48, 50, 51, 53 and 54 under 35 U.S.C. § 112, first paragraph.

Claims 1-3 and 5-45 have been rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,204,867 (Fujimoto) in view of U.S. Patent 6,356,358 (Kakutani et al.), Claims 46, 49 and 52 have been rejected under 35 U.S.C. § 103(a) as being obvious from Fujimoto in view of JP 10-097161 A (Kawai) and Claims 47, 48, 50, 51, 53 and 54 have been rejected under 35 U.S.C. § 103(a) as being obvious from Fujimoto in view of JP 08-130637 (Ono). Reconsideration and withdrawal of these rejections are respectfully requested.

The present invention concerns image processing wherein the image may have a plurality of types, such as halftone images and character data. Although an operator may select a mode for processing images that includes decimating the image in order to increase processing speed, an image processing apparatus cancels the mode selected by the operator if it is determined that the selected mode will result in an adverse effect on the quality of the processed image.

Turning now to the claims, amended Claim 1 is directed to an image processing apparatus. The apparatus includes an input means for inputting an image of one of a plurality of image types and an image processing means for generating a recording image data based on the input image, the image processing means being capable of

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generating first recording image data for recording the image on a recording material at a predetermined recording density, and second recording image data for recording the image on a recording material at a recording density lower than that of the first recording image data, by reducing the number of recording dots through decimation. A selecting means is provided for use of the operator in selecting a recording mode from among a first recording mode, for recording the first recording image data, and a second recording mode, for recording the second recording image data. A determining means determines if the input image is a predetermined image type and a control means for changing to the first recording mode, when the second recording mode is selected by the operator and said determining means determines that the input image is the predetermined image type suitable for recording by the first recording mode whereby the recording mode selected by the operator is canceled.

In contrast, Fujimoto discloses both a color mode and a monochrome mode, and in a few embodiments the operator is expected to input a manual selection between those modes. (Fujimoto, column 22, lines 3 to 34, and column 27, lines 3 to 67). However, Fujimoto neither discloses not suggests that the apparatus of Fujimoto automatically overrides such selection made by the operator. In some embodiments, the apparatus itself does determine whether the original is color or monochrome, and selects between those modes automatically (Fujimoto, column 16, line 61, to column 17, line 21), and in others, an automatic selection is made on the basis of which mode has been more frequently used in the past (Fujimoto, column 17, line 64, to column 18, line 34). However, there is no suggestion of the recording mode selected by the operator being canceled.

Furthermore, Kakutani discloses a dot recording apparatus for recording dots on a surface of a printing medium with a dot recording head. The dot recording apparatus includes a dot-forming element array arranged on the dot recording head to face the printing medium, the dot-forming element array including a plurality of dot-forming elements for forming a plurality of dots of an identical color at a substantially constant pitch in a sub-scanning direction, a main scan driving unit that drives at least one of the dot recording head and the printing medium to carry out main scan, a head driving unit that drives at least part of the plurality of dot-forming elements to form dots in the course of the main scan, a sub-scan driving unit that drives at least one of the dot recording head and the printing medium every time when the main scan is completed, thereby carrying out sub-scan, and a control unit that controls the above units. However, Kakutani is entirely silent regarding reducing the number of recording dots through decimation. Additionally, Kakutani is silent regarding a selecting means for use of the operator in selecting a recording mode from among a first recording mode, for recording the first recording image data, and a second recording mode, for recording the second recording image data. Nor does Kakutani disclose a determining means for determining if the input image is a predetermined image type and a control means for changing to the first recording mode, when the second recording mode is selected by the operator and said determining means determines that the input image is the predetermined image type suitable for recording by the first recording mode whereby the recording mode selected by the operator is canceled. Therefore, Kakutani is not seen to cure the deficiencies of Fujimoto.

In addition, Kawai discloses that a user may select different types of thinning modes but Kawai is entirely silent on a determining means for determining if the

input image is a predetermined image type and a control means for changing to the first recording mode, when the second recording mode is selected and said determining means determines that the input image is the predetermined image type suitable for recording by the first recording mode whereby the selected recording mode is canceled. Finally, Ono discloses a method of converting black picture elements into white picture elements in order to avoid applying too much ink during printing. However, as in Kawai , nothing in Ono is seen to suggest a control means for changing to the first recording mode, when the second recording mode is selected and a determining means determines that the input image is the predetermined image type suitable for recording by the first recording mode whereby the selected recording mode is canceled.

As neither Fujimoto, Kakutani, Kawai nor Ono, neither alone nor in combination, disclose nor suggest at least the feature of a control means for changing to a first recording mode, when a second recording mode is selected by the operator and a determining means determines that the input image is the predetermined image type suitable for recording by the first recording mode whereby the recording mode selected by the operator is canceled, Applicants submit that Claim 1 is now in condition for allowance and respectfully request same.

Amended independent Claims 9, 15, 46, 47, 48 and 50 are directed to apparatuses incorporating at least the features of reducing dot density by decimation and a control means for changing to the first recording mode, when the second recording mode is selected and said determining means determines that the input image is the predetermined image type suitable for recording by the first recording mode whereby the recording mode

selected is canceled. Accordingly, Applicants submit that amended Claims 9, 15, 46, 47, 48 and 50 are also in condition for allowance and respectfully request same.

Amended independent Claims 16, 24, 30, 49 and 51 are directed to methods incorporating at least the features of reducing dot density by decimation and a control means for changing to the first recording mode, when the second recording mode is selected and said determining means determines that the input image is the predetermined image type suitable for recording by the first recording mode whereby the recording mode selected is canceled. Accordingly, Applicants submit that amended Claims 16, 24, 30, 49 and 51 are also in condition for allowance and respectfully request same.

Amended independent Claims 31, 37, 39, 45, 52, 53 and 54 are directed to a computer-readable medium storing a computer program incorporating at least the features of reducing dot density by decimation and a control means for changing to the first recording mode, when the second recording mode is selected and said determining means determines that the input image is the predetermined image type suitable for recording by the first recording mode whereby the selected recording mode is canceled. Accordingly, Applicants submit that amended Claims 31, 37, 39, 45, 52, 53 and 54 are also in condition for allowance and respectfully request same.

The other claims in this application are each dependent from the independent claims discussed above and are, therefore, believed allowable for the same reasons. Because each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration of each dependent claim on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, the entire application is believed to be in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

Applicants' undersigned attorney may be reached in our Costa Mesa, CA office at (714) 540-8700. All correspondence should continue to be directed to our below-listed address.

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